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Transmission of Hepatitis C Virus Infection Associated With Home Infusion Therapy for Hemophilia

Transmission of hepatitis C virus (HCV) and other bloodborne viruses between household members who are not sex partners presumably results from inapparent percutaneous or permucosal exposures, such as sharing articles that may be contaminated with microscopic quantities of blood. The risk for nonsexual household transmission is extremely low, and no cases of such transmission have been documented (*1*); direct percutaneous exposures (e.g., injecting drugs) have been identified as the major risk factor for infection (*1*). This report summarizes the investigation of a newly acquired case of HCV infection in a child with hemophilia, after a preliminary investigation identified several household members with HCV infection. The findings suggest the child acquired infection through percutaneous exposure to the mother's HCV-infected blood during infusion of clotting-factor concentrate.

On September 12, 1996, a case of seroconversion of antibody to HCV (anti-HCV) in a 4-year-old child with moderate factor VIII deficiency was reported to the Seroconversion Surveillance Project, a surveillance system maintained jointly by the Food and Drug Administration, CDC, and the National Hemophilia Foundation. The child tested positive for anti-HCV on August 29, 1996, after testing negative in June 1994 and August 1995. Serum drawn on the same day (August 29) tested negative for human immunodeficiency virus (HIV) antibody. With the exception of the 14 days after birth, the child had always received recombinant clotting-factor concentrate for treatment of bleeding episodes.

Testing of serum samples from six household members indicated that three were anti-HCV–positive, including the patient's mother, an older sibling, and an aunt who had stayed in the household for 6 weeks during September–October 1995. The mother and aunt had histories of having injected illicit drugs but had not been tested previously for anti-HCV. The sibling, aged 11 years, had moderate factor VIII deficiency and was anti-HCV–positive when first tested in 1992.

Until November 1994, the child was treated for bleeding episodes at a local emergency department with recombinant clotting-factor concentrate brought from home. Beginning in November 1994, the patient's mother administered clotting-factor concentrate to him at home after receiving training from a nurse employed by a home health-care company. Follow-up consisted of an annual visit to a hemophilia treatment center. During February 1995–June 1996, the period during which the child prob-

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ably became infected, the patient's mother administered factor VIII concentrate to him on 13 occasions. She reported that, until May 1996, three other persons were required to restrain the child during infusions because the child was combative and resistant. Infusions usually were administered through a vein in the foot because of reported difficulties in accessing a vein in the upper arm, and up to 3 hours were required for infusion. The mother recalled that, on at least two occasions, she pricked her finger with the needle while attempting an infusion and drew a visible quantity of blood, but she could not remember whether she continued to use the same needle for the infusion. Before learning in September 1996 that she was infected with HCV, she did not use gloves when infusing clotting-factor concentrate. No other family members assisted in administering factor concentrates.

The child and the mother shared a bed. Although each household member had his or her own toothbrush, bath towels were shared. All household members were negative for or denied recent histories of dermatitis, open wounds, injury, or external bleeding episodes.

Sequence analysis of the HCV strains of the child and the HCV-infected family members indicated that the strain isolated from the mother and the child were identical in a sequence of 220 nucleotides in the NS5b region of the genome. Viral sequences in this region isolated from the aunt and brother differed by four and 10 nucleotides, respectively, from the child's strain.

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Editorial Note: The results of the investigation described in this report suggest that the child acquired HCV infection through percutaneous exposure to the mother's HCV-infected blood during infusion of clotting-factor concentrate. The mother was responsible for infusing factor concentrate and reported incurring needlesticks during some of these infusions. Therefore, blood-to-blood contact may have resulted either from use of a contaminated needle to administer an infusion or by contamination of the infusion site. In addition, analysis of the sequences of the segments of HCV strains isolated from the mother and child indicated the strains were closely related. Because the time of initial infection of the mother could not be documented, the possibility that the child acquired infection from another unrecognized source and was the subsequent source of infection for the mother cannot be excluded. However, the mother had been a long-term injecting-drug user before birth of the child and may have acquired HCV infection through sharing needles and syringes. Surveys indicate that up to 90% of long-term injecting-drug users test positive for anti-HCV (*1*).

Among persons with hemophilia who were heavily infused with clotting-factor concentrates before the development of viral inactivation methods, the prevalence of anti-HCV exceeds 90% (*1*). The safety of plasma-derived clotting-factor concentrates has been improved by instituting measures that include screening for serologic markers of bloodborne pathogens in donated plasma used in the manufacture of these products and the incorporation of viral inactivation steps (e.g., dry heating, pasteurization, and solvent detergent treatment) (*2*). Transmission of HCV or other viral agents has not been reported in association with receipt of genetically engineered factor concentrates or of albumin, the only human plasma-derived material present in

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these recombinant products (*3,4*). Based on these considerations, clotting-factor concentrate was an unlikely source of infection in the case described in this report because the child had received only recombinant product during the period in which infection was likely to have been acquired.

Home infusion therapy is a convenient and cost-effective alternative to treatment of hemophilia in the health-care setting (*5*). However, if proper infection-control procedures are not followed, patients and household members may be at risk for exposure to bloodborne pathogens during home infusion therapy. In one study, 18% of household members who assisted HIV-infected hemophilia patients with the infusion process reported having sustained at least one needlestick injury (*6*), and HIV infection has been acquired through percutaneous exposure during home treatment of acquired immunodeficiency syndrome (*7*) and hemophilia (*8*).

CDC recommends that patients and families who are eligible for home infusion therapy be informed of the potential risks for infection with bloodborne pathogens and be assessed for their ability to use adequate infection-control practices consistently. Patients and families should receive training with a standardized curriculum that includes appropriate infection-control procedures before initiation of home infusion therapy, and infection-control practices should be regularly evaluated at home through follow-up visits by health-care professionals with specific training in such practices. Routine testing of caregivers for bloodborne pathogens is not recommended; all caregivers should follow the universal precautions recommended for all persons who infuse blood products. Gloves should be worn by persons who prepare or infuse blood products and during disposal of infusion equipment and waste. A needle that has broken the skin should not be reused, and used needles should never be recapped. Used needles should be placed in a sharps container in a location inaccessible to children. Needlestick incidents occurring during home infusion therapy should be reported to the health-care professionals supervising home treatment. All household and sexual contacts of patients with chronic hepatitis B virus infection should receive hepatitis B vaccine.

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Hepatitis A Vaccination Programs in Communities with High Rates of Hepatitis A

In June 1995, the Public Health Service Advisory Committee on Immunization Practices (ACIP) issued recommendations about the use of hepatitis A vaccine for the prevention and control of hepatitis A (*1*). In communities with high rates of hepatitis A and periodic outbreaks, the ACIP recommends routine vaccination of young children and catch-up vaccination of previously unvaccinated older children (*1*). This report describes hepatitis A vaccination programs initiated to control ongoing outbreaks and prevent future outbreaks in two communities with high rates of hepatitis A. Preliminary epidemiologic data indicate that the program in one area may have decreased the magnitude and duration of a predicted outbreak. The incidence of hepatitis A in other areas will require long-term monitoring to determine the effect of the vaccination program.

Northern Plains Indians

Outbreaks of hepatitis A occur periodically (i.e., at 5–7 year intervals) in many American Indian and Alaskan Native communities and typically last for 2–3 years. Cases primarily occur among children aged <15 years, 30%–40% of children become infected before age 5 years, and approximately 80% are immune after age 12 years (*2*). During 1995–1996, the Indian Health Service (IHS), in collaboration with state health departments and tribal health authorities, implemented hepatitis A vaccination programs on several Northern Plains Indian reservations. On reservations with ongoing outbreaks, catch-up vaccination of children aged 5–12 years was conducted through vaccination clinics held in schools, and preschool- and school-aged children were vaccinated in IHS clinics. In some areas, preschool-aged children also received vaccine through the Head Start program. On reservations without ongoing outbreaks, hepatitis A vaccine was available to children aged 2–12 years who visited IHS clinics. To promote the program, news media releases and public service announcements were issued, and information was sent home with schoolchildren. In addition, vaccination program staff met with and received input and support from tribal groups, community service leaders, and school staff.

To estimate vaccination coverage among children in the target population, IHS and CDC reviewed medical records of a random sample of 670 (6%) of the estimated 10,600 children aged 2–12 years in three IHS service units (service units 1 and 2 correspond to reservations 1 and 2, and service unit 3 is an urban area) approximately 1 year after implementation of the vaccination programs; the Clinic Assessment Software Application was used in the review (*3*). Records without hepatitis A vaccination information were cross-checked for vaccination status using other vaccination databases and school records. Estimated first dose vaccination coverage was 71% (95% confidence interval [CI]=69%–74%) in unit 1, 27% (95% CI=24%–30%) in unit 2, and 18% (95% CI=14%–23%) in unit 3. Of all unvaccinated children, 77% (95% CI=74%–80%) had visited a clinic during the preceding year for a condition for which vaccination was not contraindicated.

To evaluate the characteristics of parents/guardians associated with participation in the vaccination program, interviews of a sample of 160 parents/guardians of children aged 2–12 years on reservation 1 were conducted. In each area of the reservation, interviewers and tribal health staff responsible for that area drove through the area

Hepatitis A Vaccination Programs — Continued

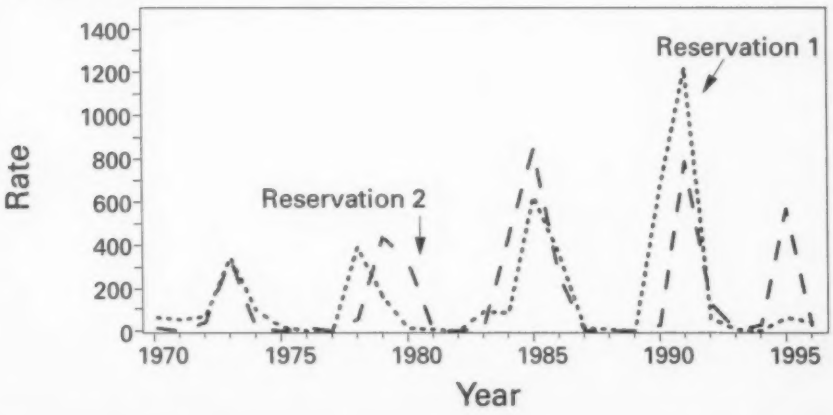
and visited households identified by staff as including a child in the targeted age group. Of the 160 survey participants, 121 (76%) had had their children vaccinated. Of these children, 63 (52%) had been vaccinated at school, 54 (45%) at a clinic, and four (3%) at other sites. Most (144 [90%]) survey participants had received information about the vaccination program, primarily from schools, public health nurses, clinics, and radio broadcasts. Of the 39 participants whose children were not vaccinated, 27 (69%) reported they did want their child to be vaccinated. The most frequently reported reason (80%) for the child not being vaccinated at school was that the parent/guardian wanted to be present at the time of vaccination.

Based on previous patterns of hepatitis A outbreaks on reservations 1 and 2, outbreaks were predicted for these areas in 1995–1996. During 1970–1994, a total of 95–320 cases were reported during previous outbreaks on reservation 1; in comparison, during 1995–1996, a total of 20 cases of hepatitis A were reported on reservation 1 (Figure 1). These cases occurred before or early in the course of the vaccination program; no cases have been reported since June 1996. On reservation 2, a total of 42 cases were reported during 1995–1996, compared with 54–116 cases during previous outbreaks. Most cases reported during 1995–1996 occurred before the vaccination program was started.

Tradition-Observant Jewish Community, Brooklyn, New York

Hepatitis A historically has been endemic among tradition-observant Jews in Brooklyn, New York (estimated number of persons: 90,000). During 1991–1995, two large outbreaks occurred in this community; in 1991, the reported rate was 157 cases per 100,000 population, and during 1995, the rate was 243. During both outbreaks, the rates were highest among children aged <10 years. To help prevent and control these outbreaks, in mid-1995 the New York City Department of Health (NYCDOH), in

FIGURE 1. Incidence rates* of hepatitis A, by year — reservations 1 and 2, Northern Plains Indian Community, 1970–1996



*Per 100,000 population.

Hepatitis A Vaccination Programs — Continued

collaboration with local physicians and the community, initiated a hepatitis A vaccination program especially targeting an estimated 3700 children aged 2–5 years who resided in or attended private, religious schools in the community. Of 21 pediatric practices serving this community, 18 practices participated in the program and received free hepatitis A vaccine, initially from NYCDOH and later through the Vaccines For Children (VFC) program. The vaccination program was promoted through letters and fact sheets distributed to parents by schools, announcements on local radio stations and in newspapers, and in meetings with local pediatricians.

From September 1995 through August 1996, a total of 12,530 doses of hepatitis A vaccine, including 7530 doses obtained through the VFC program, was distributed to the community. Of the 14 cases reported in 1996, two occurred among children in the age group targeted for vaccination; neither had received hepatitis A vaccine.

To assess the impact of the campaign on physician practices, the NYCDOH distributed a survey to all 18 of the participating practices in May 1996; a total of 16 practices completed the survey. Of the 16, eight reported that at least 50% of their patient population was aged <5 years. Since the beginning of the campaign, all the pediatric practices surveyed reported that they routinely administered hepatitis A vaccine to the children in the targeted age group; 38% reported that they also administered vaccine to persons aged 5–19 years in their practice.

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Editorial Note: Communities with high rates of hepatitis A are characterized by epidemics that occur with regular periodicity and by a high incidence of cases among children aged ≤15 years (*1*). This report described two examples of hepatitis A vaccination programs that are being implemented in some communities with high rates of hepatitis A. The effectiveness of these programs in reaching the targeted population has varied. Among the communities of Northern Plains Indians, a high level of vaccination coverage was achieved on reservation 1 by providing vaccine through IHS clinics and schools. Only small proportions of the target populations were vaccinated on reservation 2, despite an ongoing outbreak, and in the urban area receiving services from unit 3, where few cases were reported and vaccine was available only in the clinic. The high proportion of unvaccinated children surveyed who had visited a facility during the preceding year indicates that missed opportunities for vaccination were common.

The vaccination program in Brooklyn demonstrates that community physicians will provide hepatitis A vaccine to patients in their practices. Although vaccination coverage cannot be accurately estimated, the number of doses distributed suggests that a substantial proportion of the target population was vaccinated at these physicians' offices.

Widespread vaccination in communities with high rates of hepatitis A can prevent future outbreaks and control ongoing outbreaks (*4*). The vaccination program on

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reservation 1 was initiated shortly after cases had started to occur and may have prevented a larger outbreak. Because the outbreaks in Brooklyn and on reservation 2 had been ongoing for at least 1 year when the vaccination programs were initiated, their effect on the ongoing outbreaks could not be readily assessed.

Hepatitis A vaccination programs represent an important strategy for preventing morbidity and mortality associated with cyclic hepatitis A epidemics in communities with high rates of disease. Programs should be implemented in these communities through clinics, physicians' offices, and other sites where vaccinations are administered, and in communities with ongoing outbreaks, school-based vaccination programs should be considered. Vaccine can be ordered through the VFC program for all VFC-eligible children aged 2–18 years. Because hepatitis A vaccine is licensed for children aged ≥2 years, innovative strategies must be developed to reach preschool- and school-aged children. In communities without ongoing outbreaks, community members and health-care providers should be educated about the epidemiology of hepatitis A in their communities and the rationale for hepatitis A vaccination. Vaccination of successive cohorts of 2-year-old children and catch-up vaccination of older children will help prevent future outbreaks in these communities.

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Notice to Readers

Recommendations for Follow-Up of Health-Care Workers After Occupational Exposure to Hepatitis C Virus

Hepatitis C virus (HCV) infection is a major cause of chronic liver disease in the United States and worldwide. At least 85% of persons with HCV infection become chronically infected, and chronic liver disease with persistently elevated liver enzymes develops in approximately 70% of all HCV-infected persons (*1*). Persons with chronic hepatitis C are at risk for cirrhosis and primary hepatocellular carcinoma. Most HCV transmission is associated with direct percutaneous exposure to blood. Health-care workers (HCWs) are at occupational risk for acquiring this viral infection. However, no vaccine is available to prevent hepatitis C, and immune globulin is not recommended for postexposure prophylaxis.

In the absence of 1) pre-exposure or postexposure prophylaxis, 2) recommendations that are unique for HCV to prevent HCV transmission to others, and 3) effective therapy for most persons with chronic hepatitis C, the overall public health benefit associated with the identification of HCV infections in HCWs will be limited. However, to address individual workers' concerns about risk and outcome, CDC, in collaboration

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with the Hospital Infection Control Practices Advisory Committee, recommends that individual health-care institutions consider implementing policies and procedures for follow-up for HCV infection after percutaneous or permucosal exposures to blood (*2*). At a minimum, such policies should include

- for the source, baseline testing for antibody to HCV (anti-HCV);
- for the person exposed to an anti-HCV–positive source, baseline and follow-up (e.g., 6-month) testing for anti-HCV and alanine aminotransferase activity;
- confirmation by supplemental anti-HCV testing of all anti-HCV results reported as repeatedly reactive by enzyme immunoassay (EIA);
- recommending against postexposure prophylaxis with immune globulin or antiviral agents (e.g., interferon); and
- education of HCWs about the risk for and prevention of bloodborne infections, including hepatitis C, in occupational settings, with the information routinely updated to ensure accuracy.

Follow-up studies of HCWs who sustained a percutaneous exposure to blood from an anti-HCV–positive patient have reported an average incidence of anti-HCV seroconversion after unintentional needlesticks or sharps exposures of 1.8% (range: 0–7%) (*1–5*). A seroconversion rate of 6% was documented in the United States (*4*); in Japan, the incidence was 10% based on detection of HCV RNA by PCR (*5*). Although these follow-up studies have not documented transmission associated with mucous membrane or nonintact skin exposures, the transmission of HCV from a blood splash to the conjunctiva was described in one case report (*6*).

In February 1994, the Advisory Committee on Immunization Practices reviewed data about the prevention of HCV infection with immune globulin and concluded that there was no basis for supporting the use of immune globulin for postexposure prophylaxis of hepatitis C. There have been no assessments of the prevention of HCV infection with antiviral agents (e.g., alpha interferon), and the mechanisms of the effect of interferon in treating patients with hepatitis C are poorly understood; an established infection may need to be present for interferon to be an effective treatment (*7*). Interferon must be administered by injection and may cause severe side effects. Based on these considerations, postexposure prophylaxis regimens with antiviral agents for HCV infection are not recommended.

Several studies suggest that interferon treatment begun early in the course of HCV infection is associated with a higher rate of resolved infection. Among HCWs in the postexposure period, onset of HCV infection could be detected earlier by measuring HCV RNA using polymerase chain reaction (PCR) rather than by measuring anti-HCV using EIA. However, PCR is not a licensed assay, and the accuracy of the results are highly variable. In addition, there are no data indicating that treatment begun early during the course of chronic HCV infection is less effective than treatment begun during the acute phase of infection. Furthermore, alpha interferon is approved for the treatment only of chronic hepatitis C. Determination of whether treatment of HCV infection is more beneficial in the acute phase than in the early chronic phase will require evaluation with well-designed research protocols.

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In the absence of postexposure prophylaxis, at least six issues need to be considered in defining a protocol for the follow-up of HCWs occupationally exposed to HCV:

1. **Limited data about the occupational risk for transmission.** Although needlestick exposure to infectious blood is a risk factor for hepatitis C and this risk is intermediate between that of hepatitis B virus and human immunodeficiency virus, data are limited or nonexistent about the risk for transmission associated with other types of occupational exposures. Thus, meaningful estimates of the risk for HCV infection cannot be provided to HCWs who sustain such exposures.
2. **Limitations of available serologic testing for detecting infection and determining infectivity.** Testing methods readily available in the clinical setting are subject to some limitations. For the commercially available EIAs that detect anti-HCV, the average interval between exposure and seroconversion is 8–10 weeks. In many populations, including HCWs, the rate of false positivity for anti-HCV is at least 50%, and supplemental assays always should be used to assess the validity of repeatedly reactive EIA results. Approximately 5% of infections will not be detected unless PCR is used to detect HCV RNA. Although such assays are available from several commercial laboratories for research use, they are not standardized, and each test costs approximately $200. Both false-positive and false-negative results can occur as a consequence of improper handling and storage or contamination of test samples. In addition, the detection of HCV RNA may be intermittent, and a single negative PCR test result is not conclusive.
3. **Poorly defined risk for transmission by sexual and other exposures.** All anti-HCV–positive persons should be considered potentially infectious; however, neither the presence of antibody nor the presence of HCV RNA is a direct measure of infectivity in settings where inapparent parenteral or mucosal exposures occur. Although epidemiologic studies have implicated exposure to infected sexual and household contacts as well as to multiple sex partners in the transmission of HCV, the efficiency of transmission from these exposures is low (*1*). Studies of infants born to anti-HCV–positive mothers have documented an average rate of perinatal transmission of 5%, increasing to 9% among infants born to mothers who were HCV RNA-positive at the infant's birth (*8*). Acquisition of HCV infection from breast milk has not been documented, and in studies of breastfeeding among infants born to HCV-infected women, the average rate of infection was 4% in both breastfed and bottle-fed infants (*8*).
4. **Limited benefit of therapy for chronic disease.** One benefit from a follow-up protocol is the opportunity for eligible HCWs to seek evaluation for chronic liver disease and treatment. Although alpha interferon therapy is safe and effective for the treatment of chronic hepatitis C (*9*), sustained response rates generally are low (10%–20% in the United States); the occurrence of mild to moderate side effects in most patients has required discontinuation of therapy in up to 15% of patients. No clinical, demographic, serum biochemical, serologic, or histologic features have been identified that reliably predict which patients will respond to treatment and sustain a long-term remission.
5. **Cost of follow-up.** The estimated annual cost of providing postexposure follow-up testing nationally is $2–$4 million; the estimated cost for each person for a 6-month course of therapy is $200,000 (CDC, unpublished data, 1995).

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6. **Medical and legal implications.** A postexposure follow-up protocol will address individual workers' concerns about their risk for HCV infection and possible disease outcomes, and identify those HCWs who become infected with HCV; this information provides HCWs with the opportunity to be counseled about their risk for transmitting HCV to others and to be evaluated for development of chronic disease, and, if eligible, for therapy for chronic hepatitis C.

Counseling recommendations to prevent transmission of HCV to others (*10*) are that 1) persons who are anti-HCV–positive should refrain from donating blood, organs, tissues, or semen, and 2) household contacts should not share toothbrushes and razors. However, there are neither recommendations against pregnancy or breastfeeding nor recommendations for changes in sexual practices among HCV-infected persons with a steady partner. Although HCV sometimes can be transmitted from persons with chronic disease to their steady sex partners, the risk for transmission is low despite long-term, ongoing sexual activity. Infected persons should be informed of the potential risk for sexual transmission to assist in decision-making about precautions. Persons with multiple sex partners should adopt safer sex practices, including reducing the number of sex partners and using barriers (e.g., latex condoms) to prevent contact with body fluids.

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Notice to Readers

Public Health Leadership Institute

The CDC/University of California Public Health Leadership Institute (PHLI) is a 1-year scholars' program that includes an intensive on-site week, scheduled for March 14–20, 1998. Conducted under a cooperative agreement between CDC's Public Health Practice Program Office and the University of California at Los Angeles, the PHLI is designed to strengthen the nation's public health system by enhancing the leadership capacities of senior city, county, state, and international public health officials. The program curriculum focuses on four areas: challenges—current and future issues confronting public health; leadership and vision; communication and information; and political and social change.

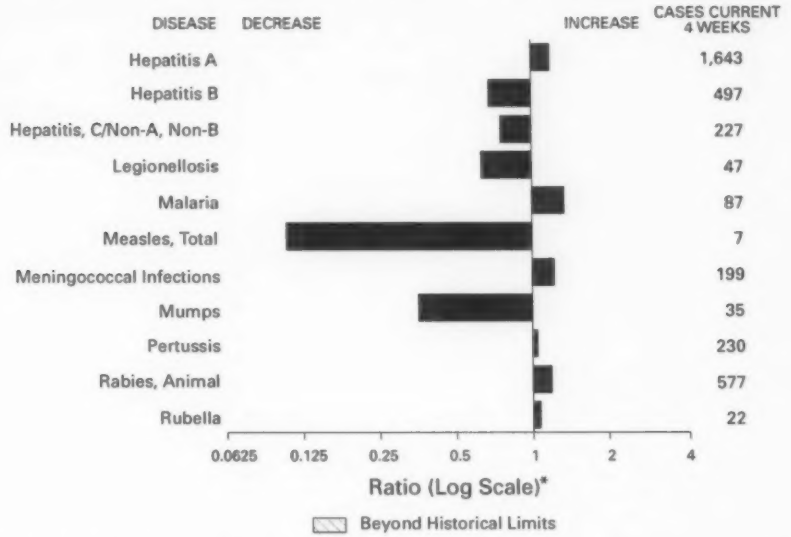
The seventh year of the PHLI will begin on November 8, 1997, with an orientation for scholars at the American Public Health Association Annual Meeting in Indianapolis, Indiana. Approximately 30 senior public health officials from city, county, state, or international health agencies will be selected to participate in the program.

Senior state and local health officials, including deputy directors nominated by state health directors, are eligible. The applications are available and must be submitted by August 15, 1997, and selected scholars will be notified by September 29, 1997. Additional information and applications are available from the Director, PHLI, telephone (510) 649-1599.

Erratum: Vol. 46, No. 7

In the article "Update: Blood Lead Levels—United States, 1991–1994," on page 142, an incorrect population estimate was given. In the fourth sentence of the first full paragraph, the estimated 930,000 children in the population aged 1–5 years with blood lead levels of ≥10 µg/dL in 1991–1994 should have been 890,000 (95% confidence interval=590,000–1,330,000). These figures are based on the March 1993 undercount-adjusted Current Population Survey estimate for the United States population.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending June 28, 1997, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending June 28, 1997 (26th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	1
Brucellosis	25	Poliomyelitis, paralytic	-
Cholera	3	Psittacosis	21
Congenital rubella syndrome	2	Rabies, human	2
Cryptosporidiosis*	581	Rocky Mountain spotted fever (RMSF)	112
Diphtheria	5	Streptococcal disease, invasive Group A	845
Encephalitis: California*	4	Streptococcal toxic-shock syndrome*	20
eastern equine*	-	Syphilis, congenital†	125
St. Louis*	1	Tetanus	20
western equine*	1	Toxic-shock syndrome	57
Hansen Disease	52	Trichinosis	3
Hantavirus pulmonary syndrome*†	6	Typhoid fever	135
Hemolytic uremic syndrome, post-diarrheal*	21	Yellow fever	-
HIV infection, pediatric*§	112		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update May 27, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending June 28, 1997, and June 29, 1996 (26th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	25,284	34,101	202,872	200,808	615	291	126,166	148,474	1,521	1,779
NEW ENGLAND	903	1,384	8,247	8,093	53	27	2,775	3,093	29	48
Maine	25	22	485	U	3	-	29	22	-	-
N.H.	14	42	355	362	4	3	57	71	6	3
Vt.	18	10	196	219	3	1	25	29	-	14
Mass.	419	648	3,548	3,239	34	23	1,108	1,044	19	28
R.I.	71	94	1,021	1,012	1	-	234	260	4	3
Conn.	356	568	2,642	3,261	8	-	1,322	1,667	-	-
MID. ATLANTIC	8,301	9,441	27,487	33,803	40	11	16,273	20,753	164	147
Upstate N.Y.	1,358	1,163	N	N	26	4	2,683	3,695	126	116
N.Y. City	4,157	5,302	14,068	18,419	6	-	6,225	8,110	-	3
N.J.	1,773	1,787	4,328	6,657	8	5	3,066	4,103	-	-
Pa.	1,013	1,189	9,091	8,727	N	2	4,299	4,845	38	28
E.N. CENTRAL	1,687	2,764	29,061	43,537	101	33	17,814	28,418	280	262
Ohio	357	618	6,325	10,258	29	11	4,129	7,205	7	9
Ind.	329	389	4,204	4,780	21	10	2,820	3,171	7	7
Ill.	612	1,205	5,454	12,300	27	-	2,701	8,149	28	50
Mich.	306	401	9,052	10,893	24	4	6,404	7,531	238	196
Wis.	83	151	4,026	5,306	N	8	1,760	2,362	-	-
W.N. CENTRAL	469	811	11,189	15,689	89	52	5,123	7,206	87	48
Minn.	84	157	U	2,702	40	26	U	1,099	2	-
Iowa	67	57	2,250	1,980	15	8	610	504	18	23
Mo.	195	398	5,573	6,590	11	13	3,524	4,221	54	12
N. Dak.	5	9	387	476	3	2	24	13	2	-
S. Dak.	3	8	631	685	6	-	67	96	-	-
Nebr.	48	55	468	1,029	9	-	126	215	2	5
Kans.	67	127	1,880	2,227	5	3	772	1,058	9	8
S. ATLANTIC	6,203	8,524	42,374	24,408	71	21	40,937	47,505	151	88
Del.	111	165	-	-	2	2	566	714	-	-
Md.	734	1,024	3,648	U	6	3	6,518	4,854	10	1
D.C.	409	599	N	N	-	-	1,436	2,205	-	-
Va.	551	542	5,410	5,554	N	7	3,975	4,797	11	8
W. Va.	38	65	1,508	1,027	N	-	467	358	9	7
N.C.	361	466	8,357	U	19	9	7,774	9,398	29	26
S.C.	300	439	5,918	U	1	-	5,346	5,591	26	15
Ga.	850	1,279	5,781	6,172	19	-	6,513	10,747	U	-
Fla.	2,849	3,945	11,752	11,655	25	-	8,342	8,841	66	31
E.S. CENTRAL	810	1,132	16,605	15,050	47	7	16,050	15,845	185	330
Ky.	113	173	3,336	3,415	14	-	1,628	2,024	9	18
Tenn.	358	444	6,292	6,467	24	7	5,245	5,542	120	263
Ala.	194	323	3,986	4,235	6	-	5,619	6,525	6	2
Miss.	145	192	2,991	933	3	-	3,558	1,754	50	47
W.S. CENTRAL	2,596	3,299	27,982	10,770	27	5	17,335	10,052	182	163
Ark.	96	145	618	872	3	1	1,280	2,079	-	4
La.	476	777	4,142	3,572	4	3	3,865	3,754	105	97
Okla.	138	139	3,649	3,893	2	1	2,323	2,391	4	1
Tex.	1,886	2,238	19,573	2,433	18	-	9,867	1,828	73	61
MOUNTAIN	730	971	12,138	12,564	74	45	3,697	3,876	199	325
Mont.	18	14	477	611	4	-	20	13	10	10
Idaho	22	23	709	780	11	8	52	53	23	83
Wyo.	13	3	284	335	4	-	26	14	85	100
Colo.	180	298	1,896	976	25	16	1,025	904	23	30
N. Mex.	65	56	1,769	2,025	5	4	617	415	33	39
Ariz.	188	281	4,804	5,632	N	13	1,442	1,904	18	37
Utah	55	102	836	753	22	-	121	143	3	12
Nev.	189	194	1,363	1,452	3	4	394	430	4	14
PACIFIC	3,585	5,775	27,789	36,894	113	87	6,162	11,726	244	368
Wash.	288	380	4,610	5,020	23	20	968	1,098	14	32
Oreg.	144	267	1,904	2,763	35	40	291	409	4	5
Calif.	3,111	5,025	19,809	27,702	52	24	4,481	9,743	148	227
Alaska	16	14	677	521	3	-	196	225	-	2
Hawaii	26	89	789	888	N	3	226	251	78	102
Guam	2	4	31	211	N	-	3	35	-	6
P.R.	762	1,047	U	U	21	U	333	319	54	88
V.I.	36	14	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	1	-	N	N	N	U	16	11	2	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update May 27, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending June 28, 1997, and June 29, 1996 (26th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	402	375	1,568	2,735	646	603	3,992	5,800	8,029	9,035	3,620
NEW ENGLAND	25	18	344	481	35	24	79	76	208	201	548
Maine	1	1	3	7	1	3	-	-	11	12	112
N.H.	3	-	7	7	1	1	-	1	6	6	21
Vt.	4	2	3	3	2	2	-	-	3	1	87
Mass.	7	9	50	26	14	7	38	38	121	84	110
R.I.	5	6	43	48	3	3	2	1	16	21	11
Conn.	5	N	238	390	14	8	39	36	51	77	205
MID. ATLANTIC	66	82	879	1,948	164	186	188	264	1,498	1,595	743
Upstate N.Y.	15	21	129	895	29	37	17	41	202	177	546
N.Y. City	2	4	15	107	85	101	38	84	808	822	-
N.J.	11	7	277	382	37	33	77	87	304	347	78
Pa.	38	50	458	564	13	15	56	52	184	249	119
E.N. CENTRAL	134	135	26	24	40	79	330	956	836	967	77
Ohio	73	45	20	11	9	7	107	363	152	140	58
Ind.	23	32	5	9	6	6	76	126	79	96	8
Ill.	-	17	1	4	5	38	33	265	412	529	2
Mich.	32	27	-	-	17	16	59	92	138	156	8
Wis.	6	14	U	U	3	12	55	110	55	46	1
W.N. CENTRAL	36	21	19	55	24	13	66	206	257	239	228
Minn.	1	1	15	3	9	3	U	25	68	60	23
Iowa	9	3	1	8	8	2	3	13	30	32	78
Mo.	9	5	2	24	3	6	44	146	100	89	12
N. Dak.	2	-	-	-	1	-	-	-	5	3	30
S. Dak.	2	2	-	-	-	-	-	-	7	13	32
Nebr.	9	8	1	-	1	-	1	7	12	13	1
Kans.	4	2	-	20	2	2	18	15	35	29	52
S. ATLANTIC	62	47	177	130	148	93	1,666	1,960	1,581	1,678	1,537
Del.	6	2	15	61	2	2	15	19	11	26	33
Md.	15	7	124	25	45	26	466	333	151	143	281
D.C.	3	3	7	1	9	5	44	81	50	73	2
Va.	11	12	4	7	32	16	138	231	140	149	304
W. Va.	N	N	1	4	-	1	1	2	27	27	42
N.C.	6	5	8	25	7	10	360	539	196	236	476
S.C.	2	4	1	2	9	4	206	223	176	186	83
Ga.	-	1	1	-	14	8	281	336	274	338	159
Fla.	19	12	16	5	30	21	155	196	556	500	157
E.S. CENTRAL	22	22	34	32	15	14	907	1,347	562	724	136
Ky.	2	2	4	11	3	3	79	69	110	118	19
Tenn.	14	9	15	9	4	5	386	433	154	254	80
Ala.	2	2	4	1	5	3	238	282	204	231	37
Miss.	4	9	11	11	3	3	204	563	94	121	-
W.S. CENTRAL	6	2	28	27	6	13	578	597	1,000	981	163
Ark.	-	-	4	14	2	-	60	142	107	98	22
La.	1	-	1	-	4	2	200	285	-	5	1
Okla.	2	2	11	3	-	-	57	96	86	80	63
Tex.	3	-	12	10	-	11	261	74	807	798	77
MOUNTAIN	26	25	6	3	36	29	72	73	256	300	58
Mont.	1	1	-	-	2	3	-	-	7	7	14
Idaho	2	-	-	-	-	-	-	1	7	4	-
Wyo.	1	3	2	3	2	2	-	2	2	3	17
Colo.	8	6	2	-	18	14	3	22	50	44	-
N. Mex.	1	1	-	-	5	1	-	4	16	46	4
Ariz.	7	7	1	-	4	3	59	38	117	108	21
Utah	5	2	-	-	2	4	3	2	11	33	-
Nev.	1	5	1	-	3	2	7	4	46	55	2
PACIFIC	25	23	55	35	178	152	106	321	1,831	2,350	132
Wash.	6	1	1	2	8	8	7	6	99	130	-
Oreg.	-	-	9	10	10	11	4	4	82	86	2
Calif.	18	22	45	22	155	127	93	310	1,523	1,998	112
Alaska	-	-	-	-	3	2	1	-	44	44	18
Hawaii	1	-	-	1	2	4	1	1	83	92	-
Guam	-	1	-	-	-	-	-	3	5	55	-
P.R.	-	-	-	-	3	-	122	123	88	105	28
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	5	1	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending June 28, 1997, and June 29, 1996 (26th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported[†]		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	576	601	13,347	13,483	4,201	4,673	1	49	1	21	70	263
NEW ENGLAND	33	14	280	158	73	98	-	9	-	1	10	11
Maine	3	-	41	12	7	2	-	-	-	-	-	-
N.H.	4	9	18	6	5	7	-	1	-	-	1	-
Vt.	3	-	7	3	2	8	-	-	-	-	-	1
Mass.	20	5	122	79	30	29	-	8	-	-	8	9
R.I.	2	-	28	6	8	6	-	-	-	-	-	-
Conn.	1	-	64	52	21	46	-	-	-	1	1	1
MID. ATLANTIC	65	126	965	901	575	750	-	11	-	4	15	23
Upstate N.Y.	8	33	140	200	116	177	-	1	-	3	4	4
N.Y. City	20	31	347	293	203	273	-	4	-	1	5	8
N.J.	27	34	169	199	127	146	-	1	-	-	1	1
Pa.	10	28	309	209	129	154	-	5	-	-	5	10
E.N. CENTRAL	84	102	1,355	1,214	445	553	-	5	-	3	8	16
Ohio	47	53	200	462	42	62	-	-	-	-	-	2
Ind.	8	7	148	160	49	77	-	-	-	-	-	-
Ill.	21	30	279	290	104	163	-	5	-	1	6	3
Mich.	7	7	652	194	236	200	-	-	-	2	2	2
Wis.	1	5	76	108	14	51	-	-	-	-	-	9
W.N. CENTRAL	29	21	1,000	1,013	246	237	-	9	-	2	11	16
Minn.	19	10	90	50	23	19	-	-	-	2	2	14
Iowa	3	3	160	207	26	28	-	-	-	-	-	-
Mo.	3	5	534	511	171	152	-	1	-	-	1	1
N. Dak.	-	-	10	28	1	-	-	-	-	-	-	-
S. Dak.	2	1	14	39	-	-	-	8	-	-	8	-
Nebr.	1	1	47	70	10	16	-	-	-	-	-	-
Kans.	1	1	145	108	15	22	-	-	-	-	-	1
S. ATLANTIC	118	107	842	546	627	625	1	2	1	4	6	5
Del.	-	1	12	6	3	4	-	-	-	-	-	1
Md.	46	37	138	101	91	80	-	-	-	1	1	-
D.C.	2	5	14	15	21	26	-	-	-	1	1	-
Va.	7	4	99	81	63	73	-	-	-	-	-	2
W. Va.	3	4	6	11	9	14	-	-	-	-	-	-
N.C.	17	18	105	68	121	182	-	-	-	1	1	-
S.C.	4	3	64	30	60	40	-	-	-	-	-	-
Ga.	20	27	173	41	57	7	-	-	-	-	-	1
Fla.	19	8	231	193	202	199	1	2	1	1	3	1
E.S. CENTRAL	35	18	337	785	360	404	-	-	-	-	-	-
Ky.	5	5	43	16	21	40	-	-	-	-	-	-
Tenn.	22	7	209	548	234	239	-	-	-	-	-	-
Ala.	8	5	50	101	37	27	-	-	-	-	-	-
Miss.	-	1	35	120	68	98	U	-	U	-	-	-
W.S. CENTRAL	31	26	2,845	2,530	536	518	-	3	-	1	4	2
Ark.	1	-	139	250	31	44	-	-	-	-	-	-
La.	6	1	111	77	64	59	-	-	-	-	-	-
Okla.	19	22	854	1,057	17	24	-	-	-	-	-	-
Tex.	5	3	1,741	1,146	424	391	-	3	-	1	4	2
MOUNTAIN	87	32	2,040	2,181	466	571	-	5	-	-	5	64
Mont.	-	-	51	63	5	6	-	-	-	-	-	-
Idaho	1	1	76	134	15	62	-	-	-	-	-	1
Wyo.	-	-	20	20	20	20	-	-	-	-	-	-
Colo.	7	6	234	198	92	64	-	-	-	-	-	6
N. Mex.	7	8	167	253	160	191	-	-	-	-	-	4
Ariz.	23	12	1,029	824	101	132	-	5	-	-	5	8
Utah	3	5	351	495	54	59	-	-	-	-	-	40
Nev.	16	-	112	194	19	37	-	-	-	-	-	5
PACIFIC	124	155	3,683	4,155	873	917	-	5	-	6	11	126
Wash.	2	2	280	282	39	53	-	-	-	-	-	37
Oreg.	22	21	194	551	57	61	-	-	-	-	-	7
Calif.	94	126	3,118	3,245	758	793	-	2	-	6	8	17
Alaska	1	4	22	28	13	4	-	-	-	-	-	63
Hawaii	5	2	69	49	6	6	-	3	-	-	3	2
Guam	-	-	-	6	1	-	U	-	U	-	-	-
P.R.	-	1	188	107	634	512	-	-	-	-	-	1
V.I.	-	-	-	24	-	21	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	5	10	1	1	21	5	U	1	U	-	1	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 125 cases among children aged <5 years, serotype was reported for 64 and of those, 25 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending June 28, 1997, and June 29, 1996 (26th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	1,961	1,891	7	320	366	62	2,424	1,891	14	61	127
NEW ENGLAND	120	79	-	7	-	6	509	427	-	-	24
Maine	12	9	-	-	-	-	6	9	-	-	-
N.H.	13	3	-	-	-	1	59	19	-	-	-
Vt.	2	3	-	-	-	3	189	10	-	-	2
Mass.	60	29	-	2	-	2	253	386	-	-	20
R.I.	8	7	-	4	-	-	12	-	-	-	-
Conn.	25	28	-	1	-	-	10	3	-	-	2
MID. ATLANTIC	175	212	2	30	53	3	170	121	-	3	7
Upstate N.Y.	44	53	-	6	15	-	52	60	-	1	3
N.Y. City	31	31	-	-	13	-	40	19	-	2	2
N.J.	40	45	-	-	2	-	5	7	-	-	2
Pa.	60	83	2	24	23	3	73	35	-	-	-
E.N. CENTRAL	268	269	-	32	83	2	185	246	1	4	3
Ohio	106	94	-	14	27	2	74	76	-	-	-
Ind.	32	36	-	4	5	-	29	15	-	-	-
Ill.	79	82	-	7	16	-	28	60	1	1	1
Mich.	29	28	-	7	34	-	31	21	-	-	2
Wis.	22	29	-	-	1	-	23	74	-	3	-
W.N. CENTRAL	143	143	1	12	5	14	143	70	-	-	-
Minn.	19	14	1	5	1	11	96	43	-	-	-
Iowa	31	30	-	6	-	-	16	3	-	-	-
Mo.	71	59	-	-	2	3	19	15	-	-	-
N. Dak.	1	2	-	-	2	-	2	-	-	-	-
S. Dak.	4	7	-	-	-	-	2	2	-	-	-
Nebr.	5	12	-	1	-	-	3	2	-	-	-
Kans.	12	19	-	-	-	-	5	5	-	-	-
S. ATLANTIC	357	290	-	46	49	26	241	180	12	33	22
Del.	4	2	-	-	-	-	-	13	-	-	-
Md.	33	33	-	4	17	-	76	63	-	-	-
D.C.	1	4	-	-	-	-	2	-	-	-	1
Va.	33	34	-	6	4	-	25	20	-	1	2
W. Va.	14	12	-	-	-	-	4	2	-	-	-
N.C.	62	49	-	7	10	22	68	34	12	22	8
S.C.	41	38	-	10	5	-	11	6	-	9	1
Ga.	72	81	-	4	2	-	7	9	-	-	-
Fla.	97	37	-	15	11	4	48	33	-	1	10
E.S. CENTRAL	151	136	-	16	15	2	44	149	-	-	2
Ky.	37	19	-	3	-	-	2	128	-	-	-
Tenn.	54	41	-	3	1	2	22	12	-	-	-
Ala.	44	40	-	6	3	-	12	4	-	-	2
Miss.	16	36	U	4	11	U	8	5	U	-	N
W.S. CENTRAL	200	213	-	34	27	1	42	60	-	4	7
Ark.	25	26	-	-	-	1	8	2	-	-	-
La.	38	36	-	11	10	-	11	4	-	-	1
Okla.	23	20	-	-	-	-	6	5	-	-	-
Tex.	114	131	-	23	17	-	17	49	-	4	6
MOUNTAIN	116	116	-	43	15	4	710	180	1	5	6
Mont.	8	5	-	-	-	1	9	7	-	-	-
Idaho	8	16	-	2	-	1	509	60	-	1	2
Wyo.	1	3	-	1	-	-	4	1	-	-	-
Colo.	32	19	-	3	2	2	136	39	-	-	2
N. Mex.	18	20	N	N	N	-	31	31	-	-	-
Ariz.	32	29	-	29	1	-	15	12	1	4	1
Utah	11	11	-	6	2	-	4	5	-	-	-
Nev.	6	13	-	2	10	-	2	25	-	-	1
PACIFIC	431	433	4	100	119	4	380	458	-	12	56
Wash.	52	54	-	12	17	3	182	182	-	-	12
Oreg.	89	75	-	1	-	1	18	33	-	-	1
Calif.	287	298	4	75	84	-	173	230	-	7	40
Alaska	1	4	-	2	2	-	1	1	-	-	-
Hawaii	2	2	-	10	16	-	6	12	-	5	3
Guam	-	2	U	1	4	U	-	-	U	-	-
P.R.	8	8	-	4	1	-	-	2	-	-	-
V.I.	-	-	U	-	1	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	4	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending June 28, 1997 (26th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	576	401	106	40	13	16	36
Boston, Mass.	166	106	35	13	3	8	15
Bridgeport, Conn.	45	33	6	4	2	-	1
Cambridge, Mass.	13	11	2	-	-	-	1
Fall River, Mass.	23	19	2	1	-	1	1
Hartford, Conn.	49	31	11	3	2	2	2
Lowell, Mass.	24	18	5	1	-	-	3
Lynn, Mass.	14	9	3	2	-	-	-
New Bedford, Mass.	19	15	3	1	-	-	1
New Haven, Conn.	33	15	11	4	2	1	2
Providence, R.I.	59	45	8	2	2	2	2
Somerville, Mass.	3	1	2	-	-	-	-
Springfield, Mass.	50	39	6	2	2	1	2
Waterbury, Conn.	28	17	6	5	-	-	2
Worcester, Mass.	51	42	6	2	-	1	4
MID. ATLANTIC	2,237	1,558	402	185	45	47	91
Albany, N.Y.	45	30	10	3	1	1	1
Allentown, Pa.	26	22	2	2	-	-	1
Buffalo, N.Y.	77	57	13	4	2	1	2
Camden, N.J.	29	17	6	3	1	2	-
Elizabeth, N.J.	21	13	5	2	-	1	-
Erie, Pa.	37	24	9	3	1	-	-
Jersey City, N.J.	40	24	10	4	-	2	-
New York City, N.Y.	1,120	784	204	104	15	13	43
Newark, N.J.	54	25	11	13	1	4	2
Paterson, N.J.	14	8	6	-	-	-	-
Philadelphia, Pa.	400	270	70	32	13	15	19
Pittsburgh, Pa.§	59	41	10	2	4	2	3
Reading, Pa.	11	9	2	-	-	-	-
Rochester, N.Y.	114	92	12	4	4	2	10
Schenectady, N.Y.	34	24	7	1	2	-	-
Scranton, Pa.	32	24	8	-	-	-	1
Syracuse, N.Y.	68	53	11	3	-	1	6
Trenton, N.J.	32	23	2	3	1	3	3
Utica, N.Y.	24	18	4	2	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,028	1,345	391	172	57	62	121
Akron, Ohio	53	36	13	3	1	-	-
Canton, Ohio	28	23	4	-	1	-	5
Chicago, Ill.	450	270	87	59	17	16	36
Cincinnati, Ohio	120	79	24	11	2	4	7
Cleveland, Ohio	173	113	39	9	5	7	1
Columbus, Ohio	196	141	34	12	4	5	22
Dayton, Ohio	107	83	15	7	2	-	6
Detroit, Mich.	198	109	53	22	6	8	8
Evansville, Ind.	34	22	9	2	-	1	1
Fort Wayne, Ind.	66	44	15	3	3	1	2
Gary, Ind.	14	8	2	4	-	-	1
Grand Rapids, Mich.	57	40	10	3	3	1	3
Indianapolis, Ind.	159	99	33	16	4	7	6
Lansing, Mich.	U	U	U	U	U	U	U
Milwaukee, Wis.	117	87	17	8	-	5	8
Peoria, Ill.	48	34	7	3	1	3	8
Rockford, Ill.	40	30	7	1	2	-	1
South Bend, Ind.	31	25	4	2	-	-	1
Toledo, Ohio	76	56	10	4	4	2	3
Youngstown, Ohio	61	46	8	3	2	2	2
W.N. CENTRAL	668	483	102	42	16	15	30
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	U	U	U	U	U	U	U
Kansas City, Kans.	52	36	9	6	1	-	1
Kansas City, Mo.	109	72	10	9	5	4	6
Lincoln, Nebr.	31	28	1	2	-	-	2
Minneapolis, Minn.	163	119	29	6	4	4	10
Omaha, Nebr.	83	57	16	5	1	4	4
St. Louis, Mo.	95	71	15	7	1	1	-
St. Paul, Minn.	47	37	5	3	1	1	4
Wichita, Kans.	88	63	17	4	3	1	3
S. ATLANTIC	961	606	235	80	25	15	60
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	159	99	42	14	2	2	13
Charlotte, N.C.	83	58	18	3	3	1	3
Jacksonville, Fla.	104	66	28	7	2	1	1
Miami, Fla.	103	65	21	14	3	-	-
Norfolk, Va.	43	25	12	5	-	1	5
Richmond, Va.	63	38	10	12	1	2	4
Savannah, Ga.	47	33	9	3	1	1	6
St. Petersburg, Fla.	43	31	10	2	-	-	2
Tampa, Fla.	156	99	37	13	2	5	18
Washington, D.C.	140	83	37	7	11	2	8
Wilmington, Del.	20	9	11	-	-	-	-
E.S. CENTRAL	876	572	179	66	29	30	42
Birmingham, Ala.	182	131	27	9	6	9	11
Chattanooga, Tenn.	57	38	10	4	2	3	4
Knoxville, Tenn.	81	57	14	6	1	3	6
Lexington, Ky.	67	52	12	1	-	2	4
Memphis, Tenn.	236	141	59	22	11	3	11
Mobile, Ala.	74	38	17	10	4	5	-
Montgomery, Ala.	40	30	7	3	-	-	4
Nashville, Tenn.	139	85	33	11	5	5	2
W.S. CENTRAL	1,434	924	289	129	53	39	74
Austin, Tex.	61	41	13	6	-	1	6
Baton Rouge, La.	63	37	14	5	3	4	-
Corpus Christi, Tex.	56	41	5	2	4	4	3
Dallas, Tex.	210	123	52	25	7	3	2
El Paso, Tex.	49	36	9	1	2	1	2
Ft. Worth, Tex.	108	76	20	7	2	3	2
Houston, Tex.	341	201	75	39	18	8	32
Little Rock, Ark.	71	40	16	6	4	5	3
New Orleans, La.	110	65	28	10	6	1	-
San Antonio, Tex.	194	134	34	15	6	5	11
Shreveport, La.	76	59	8	6	-	3	3
Tulsa, Okla.	95	71	15	7	1	1	10
MOUNTAIN	885	589	172	67	32	23	54
Albuquerque, N.M.	98	65	19	9	2	3	3
Boise, Idaho	23	16	3	1	3	-	2
Colo. Springs, Colo.	55	37	9	4	5	-	3
Denver, Colo.	105	61	22	9	3	10	8
Las Vegas, Nev.	192	124	45	16	3	4	15
Ogden, Utah	34	24	7	-	2	1	1
Phoenix, Ariz.	126	74	30	12	6	2	6
Pueblo, Colo.	31	26	3	1	1	-	1
Salt Lake City, Utah	105	80	14	6	3	2	7
Tucson, Ariz.	116	82	20	9	4	1	8
PACIFIC	1,128	787	205	87	32	17	104
Berkeley, Calif.	14	9	4	-	1	-	1
Fresno, Calif.	71	47	13	7	3	1	1
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	60	44	9	5	1	1	5
Long Beach, Calif.	65	47	12	3	2	1	15
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	24	17	6	-	1	-	-
Portland, Oreg.	109	80	14	8	5	2	8
Sacramento, Calif.	177	114	38	17	6	2	16
San Diego, Calif.	138	93	30	10	2	3	14
San Francisco, Calif.	117	81	19	14	1	2	14
San Jose, Calif.	146	104	27	8	4	3	14
Santa Cruz, Calif.	27	24	3	-	-	-	4
Seattle, Wash.	136	91	26	11	6	2	4
Spokane, Wash.	44	36	4	4	-	-	8
Tacoma, Wash.	U	U	U	U	U	U	U
TOTAL	10,793¶	7,265	2,081	868	302	264	612

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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